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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/681,565 | 10/08/2003 | Michael A. Guillorn | UBAT1360-2 | 9447 |

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| EXAMINER | |
|---|---|
| POMPEY, RON EVERETT | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2812 | |

DATE MAILED: 09/19/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/681,565 | GUILLORN ET AL. | |
| | Examiner | Art Unit | |
| | Ron E. Pompey | 2812 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *26 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *19-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 19 – 36 are rejected under 35 U.S.C. 103(a) as being obvious over Guillorn et al. ("Fabrication of gated cathode structures using in situ grown vertically aligned carbon nanofiber as a field emission element", Journal of Vacuum Science Technology) in view of Spindt (US 5235244).

Guillorn discloses the limitations of:

a substantially vertically aligned carbon nanostructure (VACNF, fig. 1(j)) coupled to a substrate;

a dielectric coupled ($SiO_2$, fig.1(c)) to the substrate and surrounding at least a portion of the substantially vertically aligned carbon nanostructure;

a gate (fig.1(h)) coupled to the dielectric, the gate including an aperture substantially aligned with the substantially vertically aligned carbon nanostructure;

wherein the substantially vertically aligned carbon nanostructure includes a vertically aligned carbon nanofiber (abstract last 2 sentences);

wherein the dielectric surrounds a single substantially vertically aligned carbon nanostructure (fig. 1 steps on page 574).

3. Guillorn discloses all the limitations *supra,* but does not disclose the claimed limitation(s) of:

another dielectric coupled to the gate, the another dielectric including a conduit substantially aligned with the substantially vertically aligned carbon nanostructure; and

a focusing electrode coupled to the another dielectric, the focusing electrode including another aperture substantially aligned with the substantially vertically aligned carbon nanostructure; wherein the dielectric, the gate, the another dielectric and the another aperture define a well that circumscribes the substantially vertically aligned carbon nanostructure;

wherein the focusing electrode composes an electrostatic focusing lens;

wherein the focusing electrode includes another aperture that is substantially aligned with the aperture of the gate;

wherein the aperture is formed by chemical mechanical polishing;

wherein at least a portion of the well is formed by reactive ion etching.

However,

a. Spindt discloses the above claimed limitations regarding:

a dielectric (20, fig. 1), gate (18, fig. 1), another dielectric (32, fig. 1) and another aperture in a focusing electrode (34, fig. 1) to define a well that circumscribes the vertically aligned cathode (12, fig. 1) in column(s) 1, line(s) 53 - column(s) 2, line(s) 5.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine Spindt with Guillorn, because another aperture in a focusing electrode allows for elimination of crosstalk between pixels of the device. Also, because Guillorn and Spindt form displays with the field emission devices it would be inherent that the displays will include IC and circuit boards.

Claims 34-35 are considered to be product by process claims and only the structure limitations will be used to determine the patentably of the claims: a "product by process" claim is directed to the product per se, no matter how actually made, In re Hirao, **190 USPQ 15 at 17**(footnote 3). See also in re Brown, **173 USPQ 685**: In re Luck, **177 USPQ 523**; In re Fessmann, **180 USPQ 324**: In re Avery, **186 USPQ 116** in re Wertheim, **191 USPQ 90** (**209 USPQ 254** does not deal with this issue); and In re Marosi et al, **218 USPQ 289** final product per se which must be determined in a "product by, all of" claim, and not the patentability of the process, and that an old or obvious product, whether claimed in "product by process" claims or not. Note that Applicant has the burden of proof in such cases, as the above case law makes clear. "Even though product-by- process claims are limited by and defined by the process, determination of patentability is based upon the product itself. The patentability of a product does not depend on its method of production. If the product in product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product is made by a different process." In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted).

***Response to Arguments***

2. Applicant's arguments filed June 26, 2006, pertaining to claims 19-36, have been fully considered but they are not persuasive. The applicant argues that figure 1 of Spindt is described within Spindt itself as prior art; that when read as a whole the Spindt reference teaches that it is an improvement to omit the focusing electrode 30, and therefore Spindt teaches away from having a focusing electrode. The entire

specification, claims, drawings and disclosure can be used as prior art. The Spindt reference does not teach away from using the focusing electrode 30 only a improved preferred embodiment that is different from the prior art and the courts have held that "Disclosed examples and preferred embodiments do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971). "A known or obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use." In re Gurley, 27 F.3d 551, 554, 31 USPQ2d 1130, 1132 (Fed. Cir. 1994)." Additionally, even if Spindt did teach away, which it does not, the courts have held that "A reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including nonpreferred embodiments. Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed.")."

***Conclusion***

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ron E. Pompey whose telephone number is (571) 272-1680. The examiner can normally be reached on 9AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ron Pompey
AU: 2812
September 13, 2006

MICHAEL LEBENTRITT
SUPERV'SORY PATENT EXAMINER